

CLAIMS

1. Process for the preparation of a quasi-crystalline boehmite comprising the steps of:
 - 5 a) preparing an aqueous precursor mixture comprising a water-insoluble aluminium source,
 - b) decreasing the pH of the precursor mixture of step a) by at least 2 units,
 - c) increasing the pH of the mixture of step b) by at least 2 units, and
 - d) aging the mixture of step c) under hydrothermal conditions to form the
10 quasi-crystalline boehmite.
2. A process according to claim 1 wherein the pH in step b) is decreased to a value below 7.
- 15 3. A process according to claim 2 wherein the pH in step b) is decreased to a value below 5.
4. A process according to claim 3 wherein the pH in step b) is decreased to a value below 3.
20
5. A process according to any one of the preceding claims wherein the pH in step c) is increased to a value of at least 6.
6. A process according to claim 5 wherein the pH in step c) is increased to a value of at least 10.
25
7. A process according to any one of the preceding claims wherein the water-insoluble aluminium source is selected from the group consisting of aluminium trihydrate, thermally treated aluminium trihydrate, aluminium sol, aluminium gel, and mixtures thereof.
30

8. A process according to any one of the preceding claims wherein the water-insoluble aluminium source is milled, either prior to its addition to the precursor mixture or when present in the precursor mixture.
- 5 9. A process according to any one of the preceding claims followed by shaping the formed quasi-crystalline boehmite into shaped bodies.
10. A process according to any one of the preceding claims wherein additives are added either before or during step d).
- 10 11. A process according to any one of the preceding claims wherein the process is conducted in a continuous mode in one or more vessels.
- 15 12. A process according to claim 11 wherein the process is conducted in at least two vessels.
13. A process according to claim 11 or 12 wherein the total average residence time in all vessels together is between 20 and 120 minutes.
- 20 14. A quasi-crystalline boehmite obtainable by the process of any one of claims 1-12.
- 25 15. A quasi-crystalline boehmite according to claim 14 having a Z-average submicron particle size, as measured with quasi-electron light scattering, of less than 500 nm.
16. A quasi-crystalline boehmite according to claim 15 wherein the Z-average submicron particle size is less than 300 nm.
- 30 17. A quasi-crystalline boehmite according to claim 16 wherein the Z-average submicron particle size is less than 200 nm.

18. A quasi-crystalline boehmite according to claim 17 wherein the Z-average submicron particle size is less than 100 nm.